SPOKANE ENVIRONMENTAL SOLUTIONS
3810 East Boone Avenue, Suite 101
Spokane, Washington 99202
509.688.5376

April 23, 2019

Mr. Matt Breen
Spokane International Airport
9000 West Airport Drive
Spokane, Washington 99219

RE: Limited Assessment of Electric Avenue Waste Disposal/Fire Pit Training Area
Spokane International Airport
Spokane, Washington
SIA Contract #19-43-9999-006
SES Project No.: 0270-003

Dear Mr. Breen:

Attached are the results and supporting documentation for the recent, limited groundwater monitoring event for the perfluorinated chemicals and conventional chemistry contaminants of concern. This monitoring event was conducted per your request to provide a snapshot of current shallow groundwater conditions beneath the Site. Samples were collected from groundwater monitoring wells installed in the 1990s on behalf of the Army Corps of Engineers and/or Spokane International Airports (SIA). The Site location is shown on **Figure 1**.

We understand that the site was formerly used for live fire training exercises where fires were intentionally set for training firefighting skills and techniques. We further understand that the site has an extensive history of assessment dating back to 1984. The latest Site Closure Summary was conducted by Herrera and Associates in 2003 which reported that the only contaminates of concern (COCs) exceeding the Model Toxics Control Act (MTCA) Method A cleanup criteria for unrestricted use in shallow groundwater were diesel-range petroleum hydrocarbons. These exceedances were reported as 'minor and infrequent'. The last reported sampling of these wells was in August 1999. Arsenic was sporadically detected in groundwater samples with exceedances of cleanup criteria observed in samples collected from both upgradient and down gradient wells.

BTEXN compounds were detected in soil samples collected from the boring (Sample FP001) where concentrations exceeding MTCA Method A cleanup criteria were observed. Concentrations of contaminants were observed to decrease with depth with minor exceedances of cleanup criteria noted in the sample collected at a depth of 10 feet bgs. SVOCs and furans/dioxins were also sampled, but none of these compounds exceeded cleanup criteria. SES did not collect soil samples during this limited assessment.

Because this area was used for active fire training exercises, sampling for PFOA/PFOS compounds and for polycyclic aromatic hydrocarbons (PAHs) was conducted to determine if these compounds are present at concentrations exceeding cleanup criteria. PAHs are often formed as a byproduct of incomplete combustion and this was one process formerly present at the site.

Site Monitoring Wells

There are four pairs of monitoring wells located on site. Each pair consists of a shallow- and a deep-screened well. Monitoring well pairs MW-7 and MW-8 were installed by the Army Corps of Engineers in 1990. Monitoring well pairs MW-13 and MW-14 were installed by SIA in 1992. In each of the well pairs, the well designated by an A suffix is the deeper of the pair and is generally screened across the contact between sequenced flood sediments and the underlying basalt. Specific construction details of those wells sampled during this event are further discussed below. Monitoring well locations are shown on **Figure 2.** Monitoring Well Logs are shown in **Attachment A.**

SES found integrity issues with many of the wells. Well monuments and caps were found to be distressed and in need of repair or replacement in order to maintain the structural integrity of the well and to protect groundwater. SES can provide an estimate for the repair of these monuments upon request. Details are provided in the Photographic Log included as **Attachment B**.

Groundwater Sampling

Groundwater samples were collected for PFOA/PFOS analysis from site monitoring wells MW-7, MW-8B, MW-13A, MW-13B, and MW-14B. Samples from MW-13A, MW-13B, and MW-14B were analyzed with the remaining samples placed on Hold.

Groundwater samples were collected for conventional chemistry and for PAHs from MW-7, MW-8B, MW-13B, and MW-14B. Samples from MW-13B and MW-14B were analyzed with the remaining samples placed on Hold.

While there are two wells associated with the MW-7 well pair, the wells were not labeled in the field and only one was readily accessible. The sample was named MW-7 in the field and it was determined later that this was monitoring well MW-7B.

Depth to water in each accessible well was measured to the nearest 1/100th of a foot prior to sampling. Groundwater flow was not calculated during this event as top of casing elevations were not readily available. However, regional groundwater flow is generally to the northeast, based on our review of previous reports.

Groundwater samples were collected from each well using a peristaltic pump with dedicated tubing for each well sampled. SES has vetted the sampling materials and has found them to be free of perfluorinated compounds. Purging and sampling using low-flow sampling techniques where flow rates were generally about 0.2 to 0.3 liters per minute (l/min) minimize drawdown and mixing of water within the well during purging and sampling.

Field parameters were measured with a Horiba-U52 water quality meter. Parameters include pH, conductivity, turbidity, dissolved oxygen (DO), temperature, and oxidation reduction potential (ORP). Once field parameters stabilized within 10% from reading to reading for each parameter, laboratory-prepared sample containers were filled with water from the wells, sealed, and placed on ice. In general, the field parameters indicated that groundwater was not adversely impaired by petroleum hydrocarbons or metals as dissolved oxygen was present and ORP readings were positive.

Monitoring Wells Sampled

Monitoring well MW-13A is the deepest of this well pair. The well has a total depth of 42 feet and is screened across the contact of sediment and basalt from 32-42 feet. Groundwater sampled is presumed to flow primarily atop this contact. SES placed the intake at approximately 38 feet in this well.

Monitoring well MW-13B is 20 feet in depth and is screened from 10-20 feet. SES placed the intake at approximately 16 feet in this well.

Monitoring well MW-14B is 20.5 feet in depth and is screened from 9-19 feet. SES placed the intake at approximately 18 feet in this well.

Analytical Results

PFOA and PFOS were detected in each of the samples collected. As concentrations of PFOA/PFOS are to be summed for compliance, each sample collected exhibited concentrations exceeding the screening level of 70 ng\L. Analytical results are shown in **Table 1**.

Concentrations of BTEX, Dx compounds and total arsenic did not exceed Method Reporting Limits (MRL) and/or MTCA Method A cleanup criteria in the samples collected. Analytical results are shown in **Table 2.**

cPAHs were not detected in samples at concentrations exceeding MRL. As Ecology uses a formula to determine compliance with cleanup criteria, the analytical values were calculated and determined to be less than the cleanup level for each of the samples submitted. Analytical results and method calculations are shown in **Table 3.** Laboratory analytical reports are included in **Attachment C – Analytical Results**.

Summary

The highest concentration of perfluorinated compounds was detected in the groundwater sample collected from monitoring well MW-13B. This well is screened near-surface. In the deeper companion well MW-13A, concentrations are much lower. This well pair is in an inferred downgradient position for the former training area. The Analytical results suggest that perfluorinated compounds are either bound to soil within the capillary fringe of the vadose zone (smear zone) or are being diluted by a higher flow regimen in the lower portion of the perched aquifer. There is not enough sampling data either temporally or spatially to make a conclusive determination.

Concentrations of BTEX, Dx compounds and cPAHs were not detected at concentrations of regulatory significance during this sampling event. This could be the result of seasonal variability in flow with spring melt fostering dilution; a sampling event scheduled for late summer could verify this hypothesis.

Limitations

The findings and conclusions documented in this report have been prepared for specific application to this project and have been developed in a manner consistent with the level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area and in general accordance with the terms and

conditions set forth in our Agreement, and with the revised SES proposal dated January 31, 2019. No other warranty, express or implied, is made.

The findings presented in this report are based on conditions observed at specific site locations and sampling intervals at the time of the assessment. Because conditions between the wells and sampling intervals may vary over distance and time, the potential always remains for the presence of unknown, unidentified, unforeseen, or changed surface and subsurface contamination.

This report is for the exclusive use of Spokane International Airports and its representatives. No third party shall have the right to rely on SES's opinions rendered in connection with the services or in this document without our written consent and the third party's agreement to be bound to the same conditions and limitations as Spokane International Airports.

SES appreciates the opportunity to provide these services. Please contact the undersigned regarding any questions related to the information provided in this letter report.

Sincerely,

Spokane Environmental Solutions, LLC.

Gary D. Panther, LG, LEG

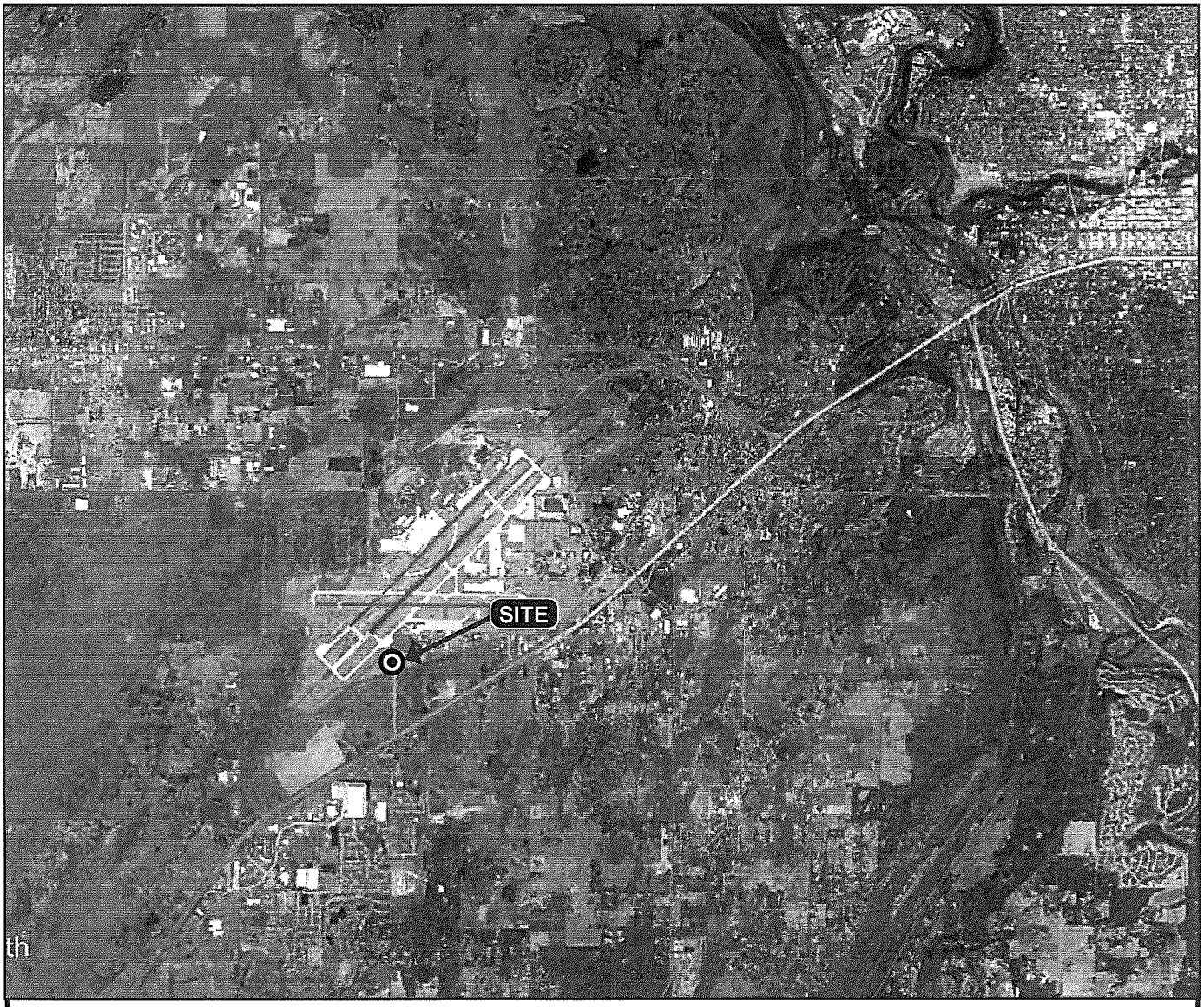
Attachments:

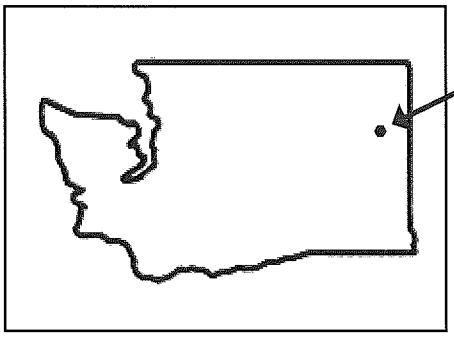
Figure 1: Location Map
Figure 2: Site Map

Table 1: Summary of Groundwater Analytical Results - PFOA-PFOS
Table 2: Summary of Groundwater Analytical Results - Conventional Chemistry
Table 3: Summary of Groundwater Analytical Results - PAHs

Attachment A: Boring Logs
Attachment B: Photographs
Attachment C: Analytical Results

Figures





Notes:

1. *The locations of all features shown are approximate.*
2. *This drawing is for information purposes. it is intended to assist in showing features discussed in an attached document.*

LOCATION MAP	
SIA ELECTRIC AVENUE BURN PIT LIMITED SITE ASSESSMENT SPOKANE, WASHINGTON	
SES SPOKANE ENVIRONMENTAL SOLUTIONS	FIGURE 1

LEGEND:

Site Monitoring Wells Pairs

Burn Pit - location based on observation from historic aerial photographs

N

Notes:

1. *The locations of all features shown are approximate.*
2. *This drawing is for information purposes. it is intended to assist in showing features discussed in an attached document.*

Source: Google Maps

SITE MAP	
SIA ELECTRIC AVENUE BURN PIT LIMITED SITE ASSESSMENT SPOKANE, WASHINGTON	
SES SPOKANE ENVIRONMENTAL SOLUTIONS	FIGURE 2

Tables

Table 1

Summary of Groundwater Analytical Results - Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonic Acid (PFOS)
Limited Groundwater Assessment Electric Avenue Waste Disposal/Fire Training Area
Spokane International Airport

			EPA-PFC/537M	
Well ID	**Sample Date**	**Depth to Water**	**PFOA (ng/L)**	**PFOS (ng/L)**
MW-13A	3/27/2019	17.00	60	**480**
MW-13B	3/27/2019	13.90	**5200**	**1100**
MW-14B	3/27/2019	16.25	**860**	**230**
Groundwater Screening Level (ng/L) [1]			70	70

Notes:

[1] Groundwater screening levels were obtained from EPA's "Fact Sheet, PFOA & PFOS Drinking Water Health Advisories," dated November 2016.

Values in **bold** font indicate that the result reported meets or exceeds the groundwater screening level.

Depth to water measured from top of casing.

ng/L - nanogram per liter

PFOA - perfluorooctanoic acid

PFOS - perfluorooctane sulfonic acid

Samples analyzed by ALS Global Laboratories, Kelso, Washington.

SES SPOKANE ENVIRONMENTAL SOLUTIONS

Table 2

Summary of Groundwater Analytical Results - Conventional Chemistry

Limited Groundwater Assessment Electric Avenue Waste Disposal/Fire Training Area

Spokane International Airport

			EPA-8260C				NWTPH-Dx DRO mg/L		EPA-6020B
Sample ID	**Date Sampled**	**Depth to Water**	**Benzene ug/L**	**Toluene ug/L**	**Ethylbenzene ug/L**	**Total Xylenes ug/L**	**DRO mg/L**	**RRO mg/L**	**Arsenic mg/L**
MW-13B	3/27/2019	13.90	<0.4	<1.0	<1.0	<3.0	<0.23	<0.38	<0.0050
MW-14B	3/27/2019	16.25	<0.4	<1.0	<1.0	<3.0	0.34	<0.40	<0.0050
MTCA Method A Cleanup Level [a]			5	1000	700	1000	0.5	0.5	0.005

Notes:

a: MTCA = Model Toxics Control Act Method A cleanup level for unrestricted use. Method B value used where Method A value not established.

-- = Not Analyzed

DRO = Diesel-Range Organics.

RRO = Residual-Range Organics.

BTEX = benzene, toluene, ethylbenzene, (total) xylenes.

BOLD = Exceedance of cleanup level.

Samples Analyzed by TestAmerica, Spokane, WA

Table 3

Summary of Groundwater Analytical Results - PAH Toxicity Equiviency Factors

Limited Groundwater Assessment Electric Avenue Waste Disposal/Fire Training Area

Spokane International Airport

cPAH	MW-13B Measured Groundwater Concentration (ug/L)	Toxicity Equivilency Factor TEF (unitless)[1]	Toxicity Equivilent Concentration TEQ (ug/L)[2]
Benzo(a)pyrene	0.0455	1	0.0455
Benzo(a)anthracene	0.0455	0.1	0.00455
Benzo(b)flouranthene	0.0455	0.1	0.00455
Benzo(k)flouranthene	0.0455	0.1	0.00455
Chrysene	0.0455	0.1	0.00455
Dibenz(a,h)anthracene	0.0455	0.1	0.00455
indeno(1,2,3-cd)pyrene	0.0455	0.1	0.00455
Sum	0.3185	--	0.04095
Method A Cleanup Level (Table 720-1)			**0.1 ug/L**

cPAH	MW-14B Measured Groundwater Concentration (ug/L)	Toxicity Equivilency Factor TEF (unitless)[1]	Toxicity Equivilent Concentration TEQ (ug/L)[2]
Benzo(a)pyrene	0.0455	1	0.0455
Benzo(a)anthracene	0.0455	0.1	0.00455
Benzo(b)flouranthene	0.0455	0.1	0.00455
Benzo(k)flouranthene	0.0455	0.1	0.00455
Chrysene	0.0455	0.1	0.00455
Dibenz(a,h)anthracene	0.0455	0.1	0.00455
indeno(1,2,3-cd)pyrene	0.0455	0.1	0.00455
Sum	0.3185	--	0.04095
Method A Cleanup Level (Table 720-1)			**0.1 ug/L**

Notes:

1. Toxicity Equivilency Factor (TEF) from MTCA Table 720-1.

2. TEQ = cPAH measured concentration * TEF

cPAH = Carcinigenic Polycyclic Aromatic Hydrocarbons

MTCA = Model Toxics Control Act Method Table 720-1 cleanup level for unrestricted use.

BOLD = Exceedance of cleanup level.

Samples Analyzed by TestAmerica, Spokane, WA

SES SPOKANE ENVIRONMENTAL SOLUTIONS

Attachment – A

Boring Logs

RESOURCE PROTECTION WELL REPORT

START CARD NO. 57709

PROJECT NAME: Spokane Airport Burn Pit
WELL INDENTIFICATION NO. MW13 A
DRILLING METHOD: 4¼" Hollow Stem Auger & Air Rotary
DRILLER: Will Hayes (2035)
FIRM: Ruen Drilling, Inc (Ruen CDI 1750)
SIGNATURE:
CONSULTING FIRM: Landau Associates Inc.
REPRESENTATIVE: Deb Sunnell

County
LOCATION: T 24N, R 42E, SEC. 6 ¼ NE ¼ NE
DISTANCE: (W) 112 FT. FROM N/S SECTION LINE
(S) 450 FT. FROM E/W SECTION LINE
DATUM: USGS monument 250' South of Runway
WATER LEVEL ELEVATION: (23') 2,357.1'
INSTALLED: 12/18/92
DEVELOPED: 12/22/92

AS-BUILT	WELL DATA		FORMATION DESCRIPTION
See attached sheet		GM	Dark brown silty to sandy GRAVEL (med. dense, moist)
		SW	Dark brown gravelly medium to very coarse SAND (loose, moist)
		GM	Dark brown silty sandy GRAVEL (loose, moist)
		ML	Medium brown fine sandy SILT with trace charcoal and leaves (very stiff, damp)
		BASALT TO 42'	Weathered Basalt with small angular pebbles mixed with clay

5 10 15 20 25 30 35

End of Hole 42'

RECEIVED
JAN 20 1993
DEPARTMENT OF ECOLOGY
EASTERN REGIONAL OFFICE

Will Hayes

RUEN DRILLING, INC.
BOX 267
CLARK FORK, ID 83811
(208) 266-1151

SCALE: 1"= 5'

PAGE 1 OF 2

ECY 050-12

LANDAU ASSOCIATES, INC.
Edmonds, WA (206) 778-0907 FAX (206) 778-6409

As-built Well Completion Form

Project: SPOKANE AIRPORT BURNPIT
Project No.: 207001.33
Well(s) No.: MW 13A
Drilling Co.: RUEN DRILLING IN
Installation Start Date: 12/18/92 Hour: 1000
Installation Finish Date: 12/22/92 Hour: 1000 monumental
Well Type: [X] Single [ ] Nested [ ] Clustered

WATER DISCHARGE MONITORING

Date: _____ Time: _____ PID(ppm) _____
Date: _____ Time: _____ PID(ppm) _____
Date: _____ Time: _____ PID(ppm) _____
Date: _____ Time: _____ PID(ppm) _____
Date: _____ Time: _____ PID(ppm) _____

EQUIPMENT USED

[X] Hollow Stem Auger 4 1/4"
[ ] Cable Tool
[ ] Air Rotary
[ ] Other _____

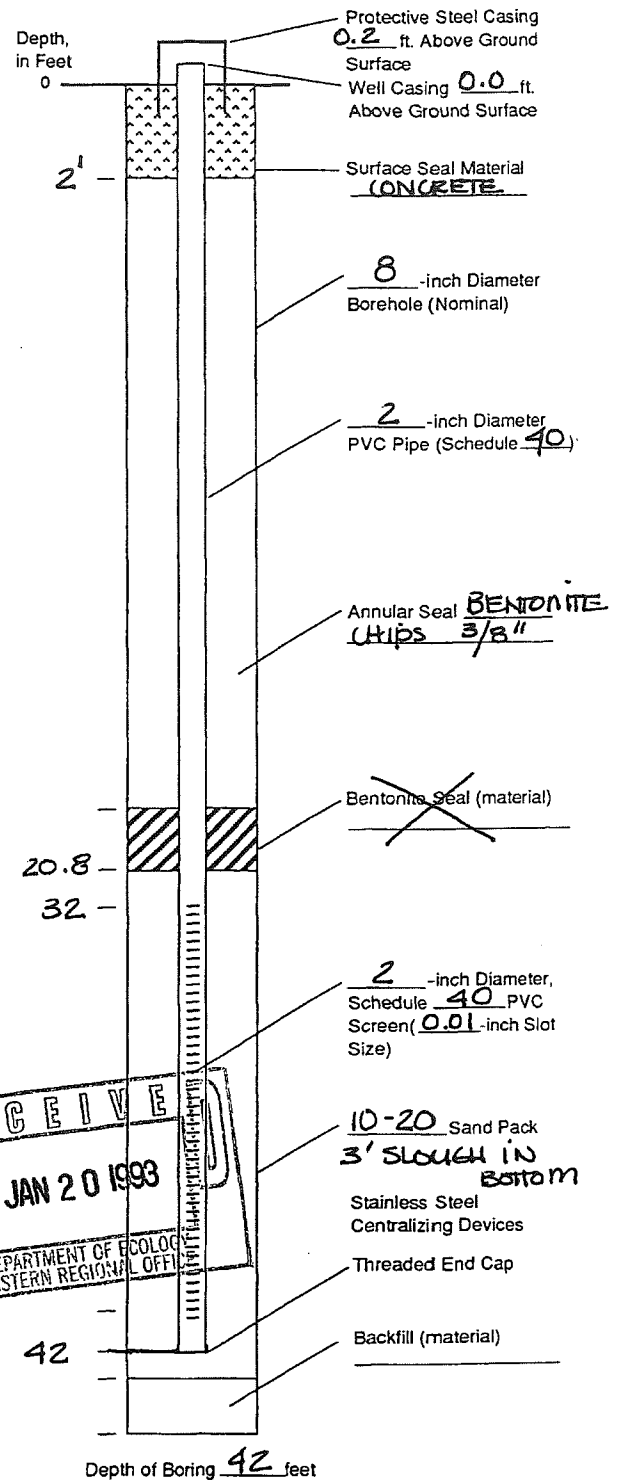
MATERIALS USED

2 Sacks of 10 - 20 Sand
_____ Sacks of _____ Concrete/Cement
3 Sacks of _____ Grout Mix Used
15 Sacks of ~~Powdered~~ Bentonite CHIPS
_____ Pounds of Bentonite Pellets/Chips
40 Feet of _____ Inch PVC Blank Casing
10 Feet of _____ Inch PVC Slotted Screen

DEVELOPMENT

Method of Development: BAILER 1 1/2" SS
Begin Date: 12/21/92 Time: 0800 BAIL 25 GALLONS
Finish Date: 12/22/92 Time: 1330 (≈ 10 GALLONS)
Yield: Time From: To: Date:
Estimate of Total Water Removed During Development: 35 (Gallons)
Description of Turbidity at End of Development: [ ] Clear [X] Slightly Cloudy [ ] Mod. Turbid [ ] Very Cloudy
Odor of Water: NONE
Water Discharged To: GROUND
Depth to Water After Development: 23.0 (Feet)

3/91



Depth of Boring 42 feet

RESOURCE PROTECTION WELL REPORT

START CARD NO. 57709

PROJECT NAME: SPOKANE AIRPORT BURNPIT
WELL INDENTIFICATION NO. MW13B
DRILLING METHOD: 4¼" HOLLOW STEM AUGER
DRILLER: WILL HAYES (2035)
FIRM: RUEN DRILLING (RUENCDI175QM)
SIGNATURE:
CONSULTING FIRM: LANDAU ASSOCIATES INC.
REPRESENTATIVE: DEB SUHNELL

County
LOCATION: T 24N, R 42E, SEC. 6 ¼ NE ¼ NE ¼
DISTANCE: (W) 112 FT. FROM N/S SECTION LINE
(S) 450 FT. FROM E/W SECTION LINE
DATUM: USGS MONUMENT 250' SOUTH OF RUNWAY
WATER LEVEL ELEVATION: (14.7) 2,366.7'
INSTALLED: ~~12/17/92~~ 12/17/92
DEVELOPED: 12/21/92

AS-BUILT	WELL DATA		FORMATION DESCRIPTION	
see attached sheet		GM	DARK brown silty to sandy GRAVEL (med. dense, moist)	5.0
		SW	Dark brown Gravelly medium to very coarse SAND (loose, moist)	10.0
		GM	Dark brown silty sandy GRAVEL (loose, moist)	15.0
		ML	Medium brown fine sandy SILT w/ trace charcoal and leaves (very stiff, damp)	20.0
			END OF HOLE 20 FT.	25.0
				30.0
				35.0

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EASTERN REGIONAL OFFICE

Will Hayes

RUEN DRILLING, INC.
BOX 267
CLARK FORK, ID 83811
(208) 266-1151

SCALE: 1"= 5'

PAGE 1 OF 2

ECY 050-12

LANDAU ASSOCIATES, INC.
Edmonds, WA (206) 778-0907 FAX (206) 778-6409

As-built Well Completion Form

Project: SPOKANE AIRPORT BURNPIT
Project No.: 207001.33
Well(s) No.: MW 13B
Drilling Co.: RUEN DRILLING INC.
Installation Start Date: 12/17/92 Hour:
Installation Finish Date: 12/22/92 Hour:
Well Type: ☒ Single ☐ Nested ☐ Clustered

WATER DISCHARGE MONITORING

Date: Time: PID(ppm)
Date: Time: PID(ppm)
Date: Time: PID(ppm)
Date: Time: PID(ppm)
Date: Time: PID(ppm)

EQUIPMENT USED

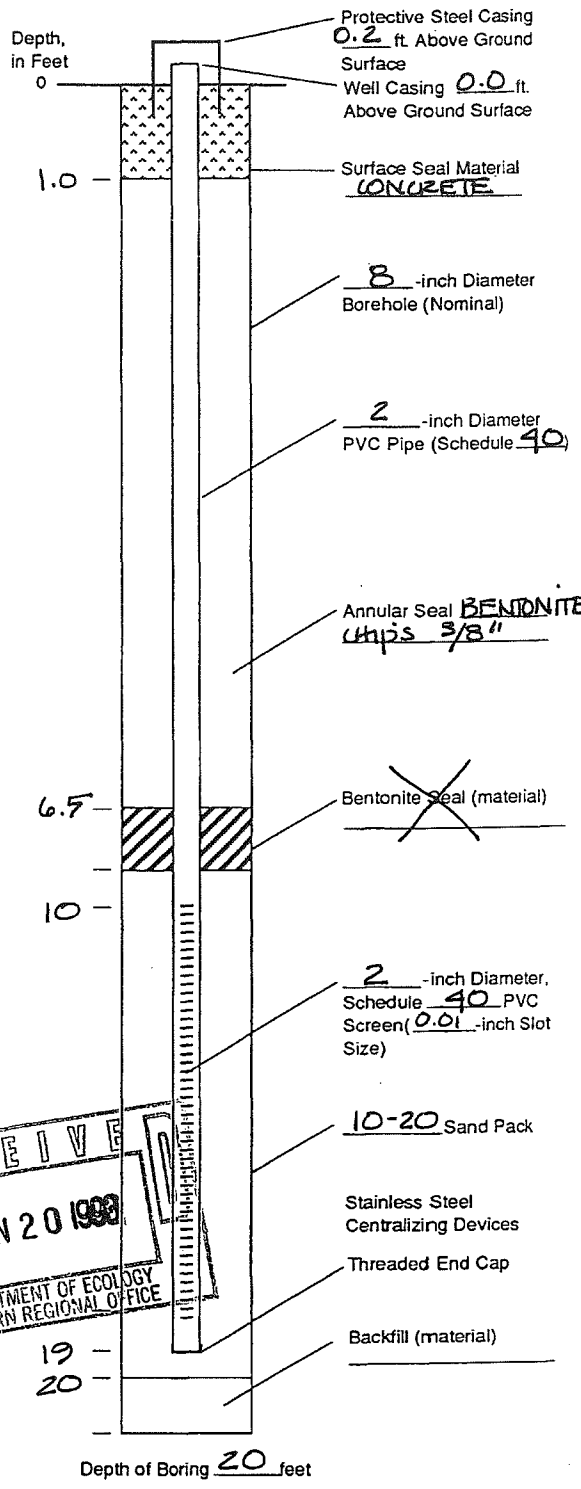
☐ Hollow Stem Auger
☐ Cable Tool
☐ Air Rotary
☐ Other

MATERIALS USED

4.5 Sacks of 10-20 Sand
2 Sacks of Concrete/Cement
Sacks of Grout Mix Used
2 Sacks of ~~Powdered~~ Bentonite CHIPS
Pounds of Bentonite Pellets/Chips
10 Feet of Inch PVC Blank Casing
10 Feet of Inch PVC Slotted Screen

DEVELOPMENT

Method of Development: HONDA PUMP
Begin Date: 12/18/92 Time: PURGE 25 GAL
Finish Date: 12/21/92 Time: PURGE 10 GAL.
Yield: Time From: To: Date:
Estimate of Total Water Removed During Development: 35 Gallons
Description of Turbidity at End of Development: ☐ Clear ☒ Slightly Cloudy ☐ Mod. Turbid ☐ Very Cloudy
Odor of Water: NONE
Water Discharged To: GROUND
Depth to Water After Development: 14.7 Feet



3/91

RESOURCE PROTECTION WELL REPORT

START CARD NO. 57709

PROJECT NAME: SPOKANE AIRPORT BURNPIT
WELL INDENTIFICATION NO. MW 14B
DRILLING METHOD: 4¼" HOLLOW STEM AUGER
DRILLER: WILL HAYES (2035)
FIRM: RUEN DRILLING (RUENCDI 175QM)
SIGNATURE:
CONSULTING FIRM: LANDAU ASSOCIATES INC.
REPRESENTATIVE: DEB SUNNELL

County
LOCATION: T 24N, R 42E, SEC. 6 ¼ NE ¼ NE
DISTANCE: (W) 165 FT. FROM N/S SECTION LINE
(S) 555 FT. FROM E/W SECTION LINE
DATUM: USGS MONUMENT 250' SOUTH OF RUNWAY
WATER LEVEL ELEVATION: (18.5) 2,362.9
INSTALLED: 12/21/92
DEVELOPED: 12/22/92

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
see attached sheet	SW	Brown to grey silty and fine to coarse SAND with trace gravel (loose moist)
	CL	Red-brown CLAY with trace Gravel (stiff, wet)
	SW	Dark Grey medium to coarse SAND with Gravel (medium dense, wet)
	CL	Brown CLAY with trace Gravels to brown sandy CLAY with silt and trace organics (stiff, wet)

5 10 15 20 25 30 35

END OF HOLE 20.5'

RECEIVED
JAN 20 1993
DEPARTMENT OF ECOLOGY
EASTERN REGIONAL OFFICE

RUEN DRILLING, INC.
BOX 267
CLARK FORK, ID 83811
(208) 266-1151

SCALE: 1"= 5'

PAGE 1 OF 2

ECY 050-12

LANDAU ASSOCIATES, INC.
Edmonds, WA (206) 778-0907 FAX (206) 778-6409

As-built Well Completion Form

Project: SAS - BURN PIT
Project No.: 207001.33
Well(s) No.: MW14B
Drilling Co.: RUEN DRILLING INC.
Installation Start Date: 12/21/92 Hour: 1515
Installation Finish Date: 12/21/92 Hour: 1015
Well Type: ☒ Single ☐ Nested ☐ Clustered
12" monument

WATER DISCHARGE MONITORING

Date: ____ Time: ____ PID(ppm) ____
Date: ____ Time: ____ PID(ppm) ____
Date: ____ Time: ____ PID(ppm) ____
Date: ____ Time: ____ PID(ppm) ____
Date: ____ Time: ____ PID(ppm) ____

EQUIPMENT USED

- ☐ Hollow Stem Auger
- ☐ Cable Tool
- ☐ Air Rotary
- ☐ Other ____

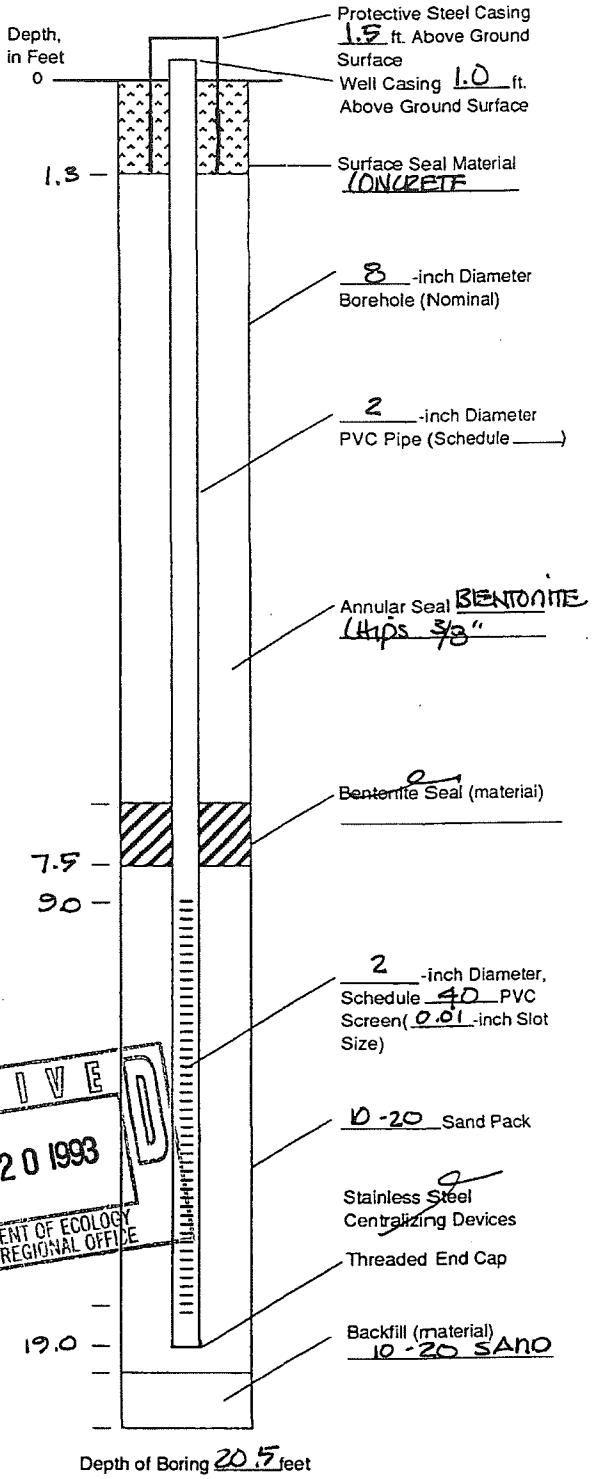
MATERIALS USED

- 5 Sacks of 10 - 20 Sand
- 2 Sacks of ____ Concrete/Cement
- ____ Sacks of ____ Grout Mix Used
- 3 Sacks of Powdered Bentonite Chips
- ____ Pounds of Bentonite Pellets/Chips
- 10 Feet of 2 Inch PVC Blank Casing
- 10 Feet of 2 Inch PVC Slotted Screen

DEVELOPMENT

Method of Development: BAILER 1½" SS
Begin Date: 12/22/92 Time: 20 GALS SLIGHT SILTY
Finish Date: Time:
Yield: Time From: To: Date:
Estimate of Total Water Removed During Development: 20 (Gallons)
Description of Turbidity at End of Development: ☐ Clear ☒ Slightly Cloudy ☐ Mod. Turbid ☐ Very Cloudy
Odor of Water: NONE
Water Discharged To: GROUND
Depth to Water After Development: 18.49 TOP PVC (Feet)

3/91



Depth of Boring 20.5 feet

Attachment – B

Photographs

SPOKANE ENVIRONMENTAL SOLUTIONS

PHOTOGRAPHIC LOG

SIA	**Limited Assessment** 6222 E. Desmet Avenue Spokane, Washington	**SES Project No.: 0270-003** **Date:** March 2019

Photo No. 1

Direction Photo Taken:

Southeasterly

Description:

View of MW-7. The well cap has been cemented in-place. Potentially an easy fix.

Photo No. 2

Direction Photo Taken:

Westerly

Description:

View of the broken monument lid on MW-8b. The entire monument should be replaced.

April 19, 2019 Service Request No:K1902735

Gary Panther
Spokane Environmental Solutions, LLC
3810 E. Boone Avenue, Ste 101
Spokane, WA 99202

Laboratory Results for: Burn Pits

Dear Gary,

Enclosed are the results of the sample(s) submitted to our laboratory March 29, 2019
For your reference, these analyses have been assigned our service request number **K1902735.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3275. You may also contact me via email at Chris.Leaf@ALSGlobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Chris Leaf
Project Manager

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626
PHONE +1 360 577 7222 | FAX +1 360 636 1068
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

1317 South 13th Ave, Kelso, WA 98626 | 1-360-577-7222 | www.alsglobal.com

ALS Environmental

Client: Spokane Environmental Solutions, LLC
Project: Burn Pits
Sample Matrix: Water

Service Request: K1902735
Date Received: 03/29/2019

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

Five water samples were received for analysis at ALS Environmental on 03/29/2019. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Organic LC:

Method PFC/537M, 04/08/2019: Samples MW-13B and MW-14B required dilution due to the presence of elevated levels of target analyte. The reporting limits are adjusted to reflect the dilution.

Approved by _____ Date 04/19/2019

ALS Environmental

SAMPLE DETECTION SUMMARY

CLIENT ID: MW-13A			Lab ID: K1902735-001			
Analyte	Results	Flag	MDL	MRL	Units	Method
Perfluorooctane sulfonic acid (PFOS)	480			4.2	ng/L	PFC/537M
Perfluorooctanoic acid (PFOA)	60			1.7	ng/L	PFC/537M

CLIENT ID: MW-13B			Lab ID: K1902735-002			
Analyte	Results	Flag	MDL	MRL	Units	Method
Perfluorooctane sulfonic acid (PFOS)	5200			420	ng/L	PFC/537M
Perfluorooctanoic acid (PFOA)	1100			17	ng/L	PFC/537M

CLIENT ID: MW-14B			Lab ID: K1902735-003			
Analyte	Results	Flag	MDL	MRL	Units	Method
Perfluorooctane sulfonic acid (PFOS)	860			43	ng/L	PFC/537M
Perfluorooctanoic acid (PFOA)	230			1.7	ng/L	PFC/537M

ALS Environmental

Sample Receipt Information

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
K1902735-001	MW-13A	3/26/2019	
K1902735-002	MW-13B	3/26/2019	
K1902735-003	MW-14B	3/26/2019	

ALS Environmental

CHAIN OF CUSTODY
97372

001

SR# K1902756

COC Set____of____

COC#_____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: BURN PITS	Project Number:
Project Manager: GARY PANTHER	
Company: Spokane Environmental Solutions	
Address: 3810 E. Boone Ave, STE 101, Spokane, WA 99202	
Phone #: 509-954-5090	email: Gary@SpokaneEnvironmental.com
Sampler Signature:	Sampler Printed Name: Gary Panther

CLIENT SAMPLE ID	LABID	SAMPLING Date	Time	Matrix	NUMBER OF CONTAINERS	14D PFC/537M/PFOA	1	2	3	4	5	Remarks
1. MW-13A		3-26-19			2	X						
2. MW-13B		3-26-19			2	X						
3. MW-14B		3-26-19			2	X						
4. MW-8B		3-26-19			2							HOLD
5. MW-7		3-26-19			2							HOLD
6.												
7.												
8.												
9.												
10.												

Report Requirements

- [X] I. Routine Report: Method Blank, Surrogate, as required
- [ ] II. Report Dup., MS, MSD as required
- [ ] III. CLP Like Summary (no raw data)
- [ ] IV. Data Validation Report
- [ ] V. EDD

Invoice Information

P.O.#0270-003

Bill To: GARY PANTHER Spokane Environmental

Turnaround Requirements

- [ ] 24 hr.
- [ ] 48 hr.
- [ ] 5 Day
- [X] Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Printed Name: GARY D. PANTHER	Printed Name: ALS	Printed Name	Printed Name	Printed Name	Printed Name
Firm: SPOKANE ENV. SOLUTIONS	Firm: 3/29/19 0930	Firm	Firm	Firm	Firm
Date/Time: 3/27/19 1500	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

PC CV

Cooler Receipt and Preservation Form

Client Spokane Environmental Service Request K19 02735

Received: 3/29/19 Opened: 3/29/19 By: KM Unloaded: 3/29/19 By: KM

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 1F + 1B
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
4.0	3.8	3.6	3.4	-0.2	390	97372	4608322190 60	

4. Packing material: *Inserts* *Baggies* *Bubble Wrap* ~~*Gel Packs*~~ (*Wet Ice*) *Dry Ice* *Sleeves* _____ KM
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA (Y) N
   If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
11. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
12. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: _____

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Miscellaneous Forms

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www.alsglobal.com

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client: Spokane Environmental Solutions, LLC **Service Request:** K1902735
Project: Burn Pits/

Sample Name: MW-13A **Date Collected:** 03/26/19
Lab Code: K1902735-001 **Date Received:** 03/29/19
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
PFC/537M	KPETERSEN	CMULLER

Sample Name: MW-13A **Date Collected:** 03/26/19
Lab Code: K1902735-001.R01 **Date Received:** 03/29/19
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
PFC/537M	KPETERSEN	CMULLER

Sample Name: MW-13B **Date Collected:** 03/26/19
Lab Code: K1902735-002 **Date Received:** 03/29/19
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
PFC/537M	KPETERSEN	CMULLER

Sample Name: MW-13B **Date Collected:** 03/26/19
Lab Code: K1902735-002.R01 **Date Received:** 03/29/19
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
PFC/537M	KPETERSEN	CMULLER

Sample Name: MW-13B **Date Collected:** 03/26/19
Lab Code: K1902735-002.R02 **Date Received:** 03/29/19
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
PFC/537M	KPETERSEN	CMULLER

Client: Spokane Environmental Solutions, LLC **Service Request:** K1902735
Project: Burn Pits/

Sample Name: MW-14B **Date Collected:** 03/26/19
Lab Code: K1902735-003 **Date Received:** 03/29/19
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
PFC/537M	KPETERSEN	CMULLER

Sample Name: MW-14B **Date Collected:** 03/26/19
Lab Code: K1902735-003.R01 **Date Received:** 03/29/19
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
PFC/537M	KPETERSEN	CMULLER

Sample Name: MW-14B **Date Collected:** 03/26/19
Lab Code: K1902735-003.R02 **Date Received:** 03/29/19
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
PFC/537M	KPETERSEN	CMULLER

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Sample Results

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Organic Compounds by HPLC

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Analytical Report

Client:	Spokane Environmental Solutions, LLC	**Service Request:**	K1902735
Project:	Burn Pits	**Date Collected:**	03/26/19
Sample Matrix:	Water	**Date Received:**	03/29/19 09:30
Sample Name:	MW-13A	**Units:**	ng/L
Lab Code:	K1902735-001	**Basis:**	NA

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M
Prep Method: EPA 3535A

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkane Sulfonic Acids						
Perfluorooctane sulfonic acid (PFOS)	**480**	4.2	1	04/03/19 16:30	4/1/19	
Perfluoroalkane Carboxylic Acids						
Perfluorooctanoic acid (PFOA)	**60**	1.7	1	04/03/19 16:30	4/1/19	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C4-PFOS	97	25 - 121	04/03/19 16:30	
13C4-PFOA	87	22 - 130	04/03/19 16:30	

Analytical Report

Client:	Spokane Environmental Solutions, LLC	**Service Request:**	K1902735
Project:	Burn Pits	**Date Collected:**	03/26/19
Sample Matrix:	Water	**Date Received:**	03/29/19 09:30
Sample Name:	MW-13B	**Units:**	ng/L
Lab Code:	K1902735-002	**Basis:**	NA

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M
Prep Method: EPA 3535A

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkane Sulfonic Acids						
Perfluorooctane sulfonic acid (PFOS)	**5200**	420	100	04/08/19 12:37	4/1/19	
Perfluoroalkane Carboxylic Acids						
Perfluorooctanoic acid (PFOA)	**1100**	17	10	04/08/19 12:27	4/1/19	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C4-PFOS	87	25 - 121	04/08/19 12:37	
13C4-PFOA	86	22 - 130	04/08/19 12:27	

Analytical Report

Client:	Spokane Environmental Solutions, LLC	**Service Request:**	K1902735
Project:	Burn Pits	**Date Collected:**	03/26/19
Sample Matrix:	Water	**Date Received:**	03/29/19 09:30
Sample Name:	MW-14B	**Units:**	ng/L
Lab Code:	K1902735-003	**Basis:**	NA

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M
Prep Method: EPA 3535A

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkane Sulfonic Acids						
Perfluorooctane sulfonic acid (PFOS)	**860**	43	10	04/08/19 12:48	4/1/19	
Perfluoroalkane Carboxylic Acids						
Perfluorooctanoic acid (PFOA)	**230**	1.7	1	04/03/19 16:51	4/1/19	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C4-PFOS	91	25 - 121	04/08/19 12:48	
13C4-PFOA	85	22 - 130	04/03/19 16:51	

QC Summary Forms

ALS Environmental—Kelso Laboratory
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ALS Environmental

Organic Compounds by HPLC

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Spokane Environmental Solutions, LLC **Service Request:** K1902735

Project: Burn Pits

Sample Matrix: Water

SURROGATE RECOVERY SUMMARY

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M

Extraction Method: EPA 3535A

Sample Name	Lab Code	13C4-PFOS 25-121	13C4-PFOA 22-130
MW-13A	K1902735-001	97	87
MW-13B	K1902735-002	87	86
MW-14B	K1902735-003	91	85
Method Blank	KQ1904177-04	93	80
Lab Control Sample	KQ1904177-03	90	82

Analytical Report

Client:	Spokane Environmental Solutions, LLC	**Service Request:**	K1902735
Project:	Burn Pits	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/L
Lab Code:	KQ1904177-04	**Basis:**	NA

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M
Prep Method: EPA 3535A

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkane Sulfonic Acids						
Perfluorooctane sulfonic acid (PFOS)	ND U	5.0	1	04/03/19 14:04	4/1/19	
Perfluoroalkane Carboxylic Acids						
Perfluorooctanoic acid (PFOA)	ND U	2.0	1	04/03/19 14:04	4/1/19	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C4-PFOS	93	25 - 121	04/03/19 14:04	
13C4-PFOA	80	22 - 130	04/03/19 14:04	

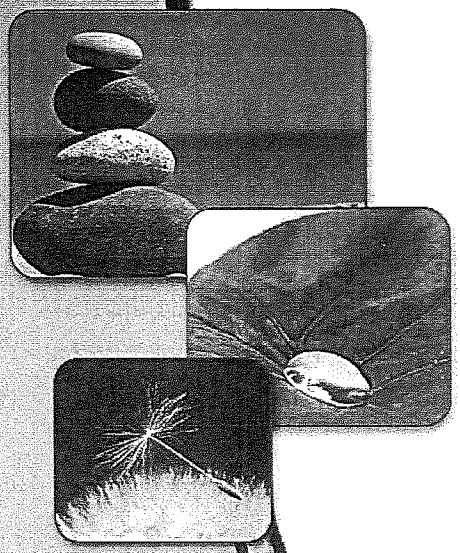
Client:	Spokane Environmental Solutions, LLC	**Service Request:**	K1902735
Project:	Burn Pits	**Date Analyzed:**	04/03/19
Sample Matrix:	Water	**Date Extracted:**	04/01/19

Lab Control Sample Summary
Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method:	PFC/537M	**Units:**	ng/L
Prep Method:	EPA 3535A	**Basis:**	NA
		Analysis Lot:	630513

Lab Control Sample
KQ1904177-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Perfluorooctane sulfonic acid (PFOS)	35.0	29.7	118	71-139
Perfluorooctanoic acid (PFOA)	42.7	32.0	133	74-146



eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Spokane
11922 East 1st Ave
Spokane, WA 99206
Tel: (509)924-9200

Laboratory Job ID: 590-10668-1
Client Project/Site: SIA Burn Pits

For:
Spokane Environmental Solutions LLC
3810 E. Boone Avenue
Suite #101
Spokane, Washington 99202

Attn: Gary Panther

Randee Arrington

Authorized for release by:
4/10/2019 11:38:58 AM

Randee Arrington, Project Manager II
(509)924-9200
randee.arrington@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Case Narrative

Client: Spokane Environmental Solutions LLC
Project/Site: SIA Burn Pits

Job ID: 590-10668-1

Job ID: 590-10668-1

Laboratory: Eurofins TestAmerica, Spokane

Narrative

Receipt
The samples were received on 3/26/2019 5:07 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 12.6° C.

Receipt Exceptions
The following sample was submitted for analysis; however, it was not listed on the Chain-of-Custody (COC): Trip Blank (590-10668-5)

The following samples were received at the laboratory outside the required temperature criteria: MW-14b (590-10668-1), MW-13b (590-10668-2), MW-8b (590-10668-3), MW-7 (590-10668-4) and Trip Blank (590-10668-5). The samples are considered acceptable since they were collected and submitted to the laboratory on the same day and there is evidence that the chilling process has begun.

The following samples were put on hold by the client on 03/27/2019: MW-8b (590-10668-3), MW-7 (590-10668-4).

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method NWTPH-Dx: Detected hydrocarbons appear to be due to heavily weathered diesel and/or biogenic interference in the following sample: MW-14b (590-10668-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: Spokane Environmental Solutions LLC
Project/Site: SIA Burn Pits

Job ID: 590-10668-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-10668-1	MW-14b	Water	03/26/19 14:00	03/26/19 17:07
590-10668-2	MW-13b	Water	03/26/19 14:45	03/26/19 17:07

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample ID: MW-14b

Date Collected: 03/26/19 14:00
Date Received: 03/26/19 17:07

Lab Sample ID: 590-10668-1
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.40		ug/L			03/27/19 21:57	1
Ethylbenzene	ND		1.0		ug/L			03/27/19 21:57	1
m,p-Xylene	ND		2.0		ug/L			03/27/19 21:57	1
o-Xylene	ND		1.0		ug/L			03/27/19 21:57	1
Toluene	ND		1.0		ug/L			03/27/19 21:57	1
Xylenes, Total	ND		3.0		ug/L			03/27/19 21:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 120*		*03/27/19 21:57*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*03/27/19 21:57*	*1*
Dibromofluoromethane (Surr)	*103*		*80 - 120*		*03/27/19 21:57*	*1*
Toluene-d8 (Surr)	*105*		*80 - 120*		*03/27/19 21:57*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:27	1
2-Methylnaphthalene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:27	1
Acenaphthene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:27	1
Acenaphthylene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:27	1
Anthracene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:27	1
Benzo[a]anthracene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:27	1
Benzo[a]pyrene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:27	1
Benzo[b]fluoranthene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:27	1
Benzo[g,h,i]perylene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:27	1
Benzo[k]fluoranthene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:27	1
Chrysene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:27	1
Dibenz(a,h)anthracene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:27	1
Fluoranthene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:27	1
Fluorene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:27	1
Indeno[1,2,3-cd]pyrene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:27	1
Naphthalene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:27	1
Phenanthrene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:27	1
Pyrene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*55*		*44 - 120*	*03/28/19 13:33*	*03/28/19 15:27*	*1*
Nitrobenzene-d5	*49*		*36 - 126*	*03/28/19 13:33*	*03/28/19 15:27*	*1*
p-Terphenyl-d14	*71*		*51 - 121*	*03/28/19 13:33*	*03/28/19 15:27*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	**0.34**		0.24		mg/L		04/05/19 10:17	04/05/19 16:42	1
Residual Range Organics (RRO) (C25-C36)	ND		0.40		mg/L		04/05/19 10:17	04/05/19 16:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*86*		*50 - 150*	*04/05/19 10:17*	*04/05/19 16:42*	*1*
n-Triacontane-d62	*87*		*50 - 150*	*04/05/19 10:17*	*04/05/19 16:42*	*1*

Client Sample ID: MW-14b

Lab Sample ID: 590-10668-1

Date Collected: 03/26/19 14:00
Date Received: 03/26/19 17:07

Matrix: Water

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050		mg/L		04/08/19 17:43	04/09/19 15:50	5

Client Sample ID: MW-13b

Lab Sample ID: 590-10668-2

Date Collected: 03/26/19 14:45
Date Received: 03/26/19 17:07

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.40		ug/L			03/27/19 22:18	1
Ethylbenzene	ND		1.0		ug/L			03/27/19 22:18	1
m,p-Xylene	ND		2.0		ug/L			03/27/19 22:18	1
o-Xylene	ND		1.0		ug/L			03/27/19 22:18	1
Toluene	ND		1.0		ug/L			03/27/19 22:18	1
Xylenes, Total	ND		3.0		ug/L			03/27/19 22:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 120*		*03/27/19 22:18*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*03/27/19 22:18*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 120*		*03/27/19 22:18*	*1*
Toluene-d8 (Surr)	*105*		*80 - 120*		*03/27/19 22:18*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:54	1
2-Methylnaphthalene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:54	1
Acenaphthene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:54	1
Acenaphthylene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:54	1
Anthracene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:54	1
Benzo[a]anthracene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:54	1
Benzo[a]pyrene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:54	1
Benzo[b]fluoranthene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:54	1
Benzo[g,h,i]perylene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:54	1
Benzo[k]fluoranthene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:54	1
Chrysene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:54	1
Dibenz(a,h)anthracene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:54	1
Fluoranthene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:54	1
Fluorene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:54	1
Indeno[1,2,3-cd]pyrene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:54	1
Naphthalene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:54	1
Phenanthrene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:54	1
Pyrene	ND		0.091		ug/L		03/28/19 13:33	03/28/19 15:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*70*		*44 - 120*	*03/28/19 13:33*	*03/28/19 15:54*	*1*
Nitrobenzene-d5	*69*		*36 - 126*	*03/28/19 13:33*	*03/28/19 15:54*	*1*
p-Terphenyl-d14	*86*		*51 - 121*	*03/28/19 13:33*	*03/28/19 15:54*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		0.23		mg/L		04/05/19 10:17	04/05/19 17:01	1

Client: Spokane Environmental Solutions LLC
Project/Site: SIA Burn Pits

Job ID: 590-10668-1

Client Sample ID: MW-13b
Date Collected: 03/26/19 14:45
Date Received: 03/26/19 17:07

Lab Sample ID: 590-10668-2
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Residual Range Organics (RRO) (C25-C36)	ND		0.38		mg/L		04/05/19 10:17	04/05/19 17:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*89*		*50 - 150*	*04/05/19 10:17*	*04/05/19 17:01*	*1*
n-Triacontane-d62	*88*		*50 - 150*	*04/05/19 10:17*	*04/05/19 17:01*	*1*

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050		mg/L		04/04/19 14:09	04/05/19 13:11	5

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 590-21494/5
Matrix: Water
Analysis Batch: 21494

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.40		ug/L			03/27/19 14:59	1
Ethylbenzene	ND		1.0		ug/L			03/27/19 14:59	1
m,p-Xylene	ND		2.0		ug/L			03/27/19 14:59	1
o-Xylene	ND		1.0		ug/L			03/27/19 14:59	1
Toluene	ND		1.0		ug/L			03/27/19 14:59	1
Xylenes, Total	ND		3.0		ug/L			03/27/19 14:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*80 - 120*		*03/27/19 14:59*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*03/27/19 14:59*	*1*
Dibromofluoromethane (Surr)	*95*		*80 - 120*		*03/27/19 14:59*	*1*
Toluene-d8 (Surr)	*108*		*80 - 120*		*03/27/19 14:59*	*1*

Lab Sample ID: LCS 590-21494/1003
Matrix: Water
Analysis Batch: 21494

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.35		ug/L		93	80 - 126
Ethylbenzene	10.0	10.2		ug/L		102	80 - 120
m,p-Xylene	10.0	10.0		ug/L		100	80 - 120
o-Xylene	10.0	9.77		ug/L		98	80 - 120
Toluene	10.0	10.2		ug/L		102	80 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*
Dibromofluoromethane (Surr)	*99*		*80 - 120*
Toluene-d8 (Surr)	*105*		*80 - 120*

Lab Sample ID: LCSD 590-21494/6
Matrix: Water
Analysis Batch: 21494

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	8.86		ug/L		89	80 - 126	5	25
Ethylbenzene	10.0	10.0		ug/L		100	80 - 120	1	25
m,p-Xylene	10.0	10.0		ug/L		100	80 - 120	0	25
o-Xylene	10.0	9.75		ug/L		97	80 - 120	0	25
Toluene	10.0	9.74		ug/L		97	80 - 123	5	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*98*		*80 - 120*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*
Dibromofluoromethane (Surr)	*99*		*80 - 120*
Toluene-d8 (Surr)	*108*		*80 - 120*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 590-21528/1-A
Matrix: Water
Analysis Batch: 21519

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 21528

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.090		ug/L		03/28/19 13:33	03/28/19 14:08	1
2-Methylnaphthalene	ND		0.090		ug/L		03/28/19 13:33	03/28/19 14:08	1
Acenaphthene	ND		0.090		ug/L		03/28/19 13:33	03/28/19 14:08	1
Acenaphthylene	ND		0.090		ug/L		03/28/19 13:33	03/28/19 14:08	1
Anthracene	ND		0.090		ug/L		03/28/19 13:33	03/28/19 14:08	1
Benzo[a]anthracene	ND		0.090		ug/L		03/28/19 13:33	03/28/19 14:08	1
Benzo[a]pyrene	ND		0.090		ug/L		03/28/19 13:33	03/28/19 14:08	1
Benzo[b]fluoranthene	ND		0.090		ug/L		03/28/19 13:33	03/28/19 14:08	1
Benzo[g,h,i]perylene	ND		0.090		ug/L		03/28/19 13:33	03/28/19 14:08	1
Benzo[k]fluoranthene	ND		0.090		ug/L		03/28/19 13:33	03/28/19 14:08	1
Chrysene	ND		0.090		ug/L		03/28/19 13:33	03/28/19 14:08	1
Dibenz(a,h)anthracene	ND		0.090		ug/L		03/28/19 13:33	03/28/19 14:08	1
Fluoranthene	ND		0.090		ug/L		03/28/19 13:33	03/28/19 14:08	1
Fluorene	ND		0.090		ug/L		03/28/19 13:33	03/28/19 14:08	1
Indeno[1,2,3-cd]pyrene	ND		0.090		ug/L		03/28/19 13:33	03/28/19 14:08	1
Naphthalene	ND		0.090		ug/L		03/28/19 13:33	03/28/19 14:08	1
Phenanthrene	ND		0.090		ug/L		03/28/19 13:33	03/28/19 14:08	1
Pyrene	ND		0.090		ug/L		03/28/19 13:33	03/28/19 14:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*72*		*44 - 120*	*03/28/19 13:33*	*03/28/19 14:08*	*1*
Nitrobenzene-d5	*85*		*36 - 126*	*03/28/19 13:33*	*03/28/19 14:08*	*1*
p-Terphenyl-d14	*93*		*51 - 121*	*03/28/19 13:33*	*03/28/19 14:08*	*1*

Lab Sample ID: LCS 590-21528/2-A
Matrix: Water
Analysis Batch: 21519

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 21528

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1-Methylnaphthalene	1.60	1.06		ug/L		66	49 - 120
2-Methylnaphthalene	1.60	1.04		ug/L		65	44 - 120
Acenaphthene	1.60	1.11		ug/L		69	54 - 120
Acenaphthylene	1.60	1.11		ug/L		69	57 - 120
Anthracene	1.60	1.19		ug/L		74	66 - 120
Benzo[a]anthracene	1.60	1.21		ug/L		76	68 - 120
Benzo[a]pyrene	1.60	1.20		ug/L		75	70 - 120
Benzo[b]fluoranthene	1.60	1.22		ug/L		76	63 - 120
Benzo[g,h,i]perylene	1.60	1.13		ug/L		71	56 - 120
Benzo[k]fluoranthene	1.60	1.31		ug/L		82	67 - 120
Chrysene	1.60	1.32		ug/L		82	69 - 120
Dibenz(a,h)anthracene	1.60	1.11		ug/L		69	58 - 120
Fluoranthene	1.60	1.26		ug/L		79	64 - 120
Fluorene	1.60	1.11		ug/L		70	59 - 120
Indeno[1,2,3-cd]pyrene	1.60	1.11		ug/L		70	58 - 120
Naphthalene	1.60	1.04		ug/L		65	52 - 120
Phenanthrene	1.60	1.19		ug/L		74	57 - 120
Pyrene	1.60	1.26		ug/L		79	52 - 120

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 590-21528/2-A
Matrix: Water
Analysis Batch: 21519

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 21528

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*64*		*44 - 120*
Nitrobenzene-d5	*84*		*36 - 126*
p-Terphenyl-d14	*86*		*51 - 121*

Lab Sample ID: LCSD 590-21528/3-A
Matrix: Water
Analysis Batch: 21519

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 21528

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1-Methylnaphthalene	1.60	1.11		ug/L		69	49 - 120	4	35
2-Methylnaphthalene	1.60	1.06		ug/L		66	44 - 120	2	35
Acenaphthene	1.60	1.15		ug/L		72	54 - 120	3	30
Acenaphthylene	1.60	1.15		ug/L		72	57 - 120	3	30
Anthracene	1.60	1.34		ug/L		84	66 - 120	12	30
Benzo[a]anthracene	1.60	1.24		ug/L		78	68 - 120	3	30
Benzo[a]pyrene	1.60	1.32		ug/L		82	70 - 120	9	30
Benzo[b]fluoranthene	1.60	1.37		ug/L		85	63 - 120	12	30
Benzo[g,h,i]perylene	1.60	1.22		ug/L		76	56 - 120	7	35
Benzo[k]fluoranthene	1.60	1.40		ug/L		87	67 - 120	7	30
Chrysene	1.60	1.35		ug/L		85	69 - 120	3	24
Dibenz(a,h)anthracene	1.60	1.16		ug/L		73	58 - 120	5	30
Fluoranthene	1.60	1.33		ug/L		83	64 - 120	5	30
Fluorene	1.60	1.17		ug/L		73	59 - 120	5	30
Indeno[1,2,3-cd]pyrene	1.60	1.17		ug/L		73	58 - 120	5	30
Naphthalene	1.60	1.07		ug/L		67	52 - 120	3	30
Phenanthrene	1.60	1.27		ug/L		79	57 - 120	6	30
Pyrene	1.60	1.39		ug/L		87	52 - 120	10	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*66*		*44 - 120*
Nitrobenzene-d5	*85*		*36 - 126*
p-Terphenyl-d14	*96*		*51 - 121*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 590-21626/1-A
Matrix: Water
Analysis Batch: 21628

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 21626

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		0.24		mg/L		04/05/19 10:17	04/05/19 13:06	1
Residual Range Organics (RRO) (C25-C36)	ND		0.40		mg/L		04/05/19 10:17	04/05/19 13:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*81*		*50 - 150*	*04/05/19 10:17*	*04/05/19 13:06*	*1*
n-Triacontane-d62	*84*		*50 - 150*	*04/05/19 10:17*	*04/05/19 13:06*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCS 590-21626/2-A
Matrix: Water
Analysis Batch: 21628

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 21626

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics (DRO) (C10-C25)	1.60	1.31		mg/L		82	50 - 150
Residual Range Organics (RRO) (C25-C36)	1.60	1.50		mg/L		94	50 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*89*		*50 - 150*
n-Triacontane-d62	*88*		*50 - 150*

Lab Sample ID: LCSD 590-21626/3-A
Matrix: Water
Analysis Batch: 21628

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 21626

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics (DRO) (C10-C25)	1.60	1.27		mg/L		79	50 - 150	3	25
Residual Range Organics (RRO) (C25-C36)	1.60	1.42		mg/L		89	50 - 150	6	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*83*		*50 - 150*
n-Triacontane-d62	*83*		*50 - 150*

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 580-298011/22-A
Matrix: Water
Analysis Batch: 298231

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 298011

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010		mg/L		04/04/19 14:09	04/05/19 11:40	1

Lab Sample ID: LCS 580-298011/23-A
Matrix: Water
Analysis Batch: 298231

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 298011

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	1.00		mg/L		100	80 - 120

Lab Sample ID: LCSD 580-298011/24-A
Matrix: Water
Analysis Batch: 298231

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 298011

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	1.00	1.03		mg/L		103	80 - 120	3	20

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 580-298224/22-A
Matrix: Water
Analysis Batch: 298325

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 298224

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010		mg/L		04/08/19 17:43	04/09/19 14:18	1

Lab Sample ID: LCS 580-298224/23-A
Matrix: Water
Analysis Batch: 298325

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 298224

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	1.05		mg/L		105	80 - 120

Lab Sample ID: LCSD 580-298224/24-A
Matrix: Water
Analysis Batch: 298325

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 298224

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	1.00	1.05		mg/L		105	80 - 120	0	20

Lab Chronicle

Client: Spokane Environmental Solutions LLC
Project/Site: SIA Burn Pits

Job ID: 590-10668-1

Client Sample ID: MW-14b

Date Collected: 03/26/19 14:00
Date Received: 03/26/19 17:07

Lab Sample ID: 590-10668-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	43 mL	43 mL	21494	03/27/19 21:57	MRS	TAL SPK

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			246.5 mL	2 mL	21528	03/28/19 13:33	NMI	TAL SPK
Total/NA	Prep	3510C			246.5 mL	2 mL	21528	03/28/19 13:33	NMI	TAL SPK
Total/NA	Analysis	8270D SIM		1			21519	03/28/19 15:27	NMI	TAL SPK
Total/NA	Prep	3510C			252.3 mL	2 mL	21626	04/05/19 10:17	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			21628	04/05/19 16:42	NMI	TAL SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	298224	04/08/19 17:43	T1H	TAL SEA
Total Recoverable	Analysis	6020B		5	50 mL	50 mL	298325	04/09/19 15:50	FCW	TAL SEA

Client Sample ID: MW-13b

Date Collected: 03/26/19 14:45
Date Received: 03/26/19 17:07

Lab Sample ID: 590-10668-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	43 mL	43 mL	21494	03/27/19 22:18	MRS	TAL SPK
Total/NA	Prep	3510C			247.5 mL	2 mL	21528	03/28/19 13:33	NMI	TAL SPK
Total/NA	Analysis	8270D SIM		1			21519	03/28/19 15:54	NMI	TAL SPK
Total/NA	Prep	3510C			265.2 mL	2 mL	21626	04/05/19 10:17	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			21628	04/05/19 17:01	NMI	TAL SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	298011	04/04/19 14:09	JKM	TAL SEA
Total Recoverable	Analysis	6020B		5	50 mL	50 mL	298231	04/05/19 13:11	FCW	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

TAL SPK = Eurofins TestAmerica, Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Accreditation/Certification Summary

Client: Spokane Environmental Solutions LLC
Job ID: 590-10668-1
Project/Site: SIA Burn Pits

Laboratory: Eurofins TestAmerica, Spokane

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C569	01-06-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	DoD / DOE		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-20

Method Summary

Client: Spokane Environmental Solutions LLC
Project/Site: SIA Burn Pits

Job ID: 590-10668-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL SPK
8270D SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	TAL SPK
NWTPH-Dx	Northwest - Semi-Volatile Petroleum Products (GC)	NWTPH	TAL SPK
6020B	Metals (ICP/MS)	SW846	TAL SEA
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL SEA
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL SPK
5030C	Purge and Trap	SW846	TAL SPK

Protocol References:

NWTPH = Northwest Total Petroleum Hydrocarbon

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

TAL SPK = Eurofins TestAmerica, Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

TestAmerica Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone (509) 924-9200 Fax (509) 924-9290

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: GP	Lab PM: Arrington, Randee E	Carrier Tracking No(s):
Client Contact: Gary Panther	Phone: 509-954-5090	E-Mail: randee.arrington@testamericainc.com	COC No: 590-4399-1421.1
Company: Spokane Environmental Solutions LLC			Page: Page 1 of 1
Address: 3810 E. Boone Avenue Suite #101	Due Date Requested:		Job #:
City: Spokane	TAT Requested (days): STD		
State, Zip: WA, 99202			
Phone: 509-954-5090(Tel)	PO #: Advance Payment Required		
Email: gary@spokaneenvironmental.com	WO #:		
Project Name:	Project #: 59001518		
Site: SIA Burn Pits	SSOW#:		

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020B - Arsenic	NWTPH_Dx - DRO and RRO	8260C - BTEX	8270D_SIM - Polycyclic Aromatic Hydrocarbons	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	D	A	A	N	X	
mw-14b	3-26-19	1400	G	Water								
mw-13b		1445	G	Water								
mw-8b		1530	G	Water								
mw-7		1605	G	Water								
				Water								

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

590-10668 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Deliverable Requested: I, II, III, IV, Other (specify)

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:	
Relinquished by: [signature]	Date/Time: 3-26-19 1807	Company: SES	Received by: Randee Arrington	Date/Time: 3/26/19 1707	Company: TASPO
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 12.6°C Frozen

Ver: 01/16/2019 4/10/2019

TestAmerica Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone (509) 924-9200 Fax (509) 924-9290

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-4214.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: randee.arrington@testamericainc.com	State of Origin: Washington	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Washington		Job #: 590-10668-1
Address: 5755 8th Street East, ,	Due Date Requested: 4/5/2019			Preservation Codes:
City: Tacoma	TAT Requested (days):			A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)
State, Zip: WA, 98424				
Phone: 253-922-2310(Tel) 253-922-5047(Fax)	PO #:			Other:
Email:	WO #:			
Project Name: SIA Burn Pits	Project #: 59001518			
Site:	SSOW#:			

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020B/3005A (MOD) Arsenic	Total Number of Containers	Special Instructions/Note:
			Preservation Code:						
MW-14b (590-10668-1)	3/26/19	14:00 Pacific		Water			X	1	
MW-13b (590-10668-2)	3/26/19	14:45 Pacific		Water			X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Maria Ortoole	3/26/19 14:34	TASPC		3.29.19 0930	TASea
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 5=-0.2/-0.1

Login Sample Receipt Checklist

Client: Spokane Environmental Solutions LLC

Job Number: 590-10668-1

Login Number: 10668
List Number: 1
Creator: O'Toole, Maria C

List Source: Eurofins TestAmerica, Spokane

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Received Trip Blank(s) not listed on COC.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

Login Sample Receipt Checklist

Client: Spokane Environmental Solutions LLC

Job Number: 590-10668-1

Login Number: 10668
List Number: 2
Creator: Hobbs, Kenneth F

List Source: Eurofins TestAmerica, Seattle
List Creation: 03/30/19 09:17 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	IR5=-0.2/-0.1
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	